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EXAMINER

BAREFORD, KATHERINE A

ART UNIT

PAPER NUMBER

1762

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6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,662

Applicant(s)

KI IHA ET AL.

Examiner

Katherine A. Bareford

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers Claims 1-12 are canceled.

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. This application does not contain an abstract of the disclosure as required by 37

CFR 1.72(b). An abstract on a separate sheet is required.

2. The disclosure is objected to because of the following informalities: (1) at the start of the specification, applicant should indicate that this case is a national stage application of

PCT/FI00/00746, filed September 1, 2000. (2) at page 4, line 11, "FIGS. 2-7" should be

"FIGS. 2, 3, 4, 5, 6 and 7".

Appropriate correction is required.

Double Patenting

3. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

4. Applicant is advised that should claim 17 be found allowable, claim 18 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight

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difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 17 and 18 are identical. It appears that applicant may have intended for claim 18 to depend from claim 16 rather than the currently claimed claim 15. The Examiner notes that because claims 17 and 18 are identical the following sets of claims, which depend from claims 17 and 18 are also substantial duplicates: (1) claims 25 and 26 and (2) claims 41 and 42.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13, 21, 29, 33, 37 and 45-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Japan 08-001061 (hereinafter '061).

'061 teaches a curtain coater and method for coating a moving web of paper. Abstract and paragraph [0022]. An applicator nozzle is positioned above the web to be coated. Abstract, paragraphs [0016] and [0017] and figures 1-2. The applicator nozzle is configured so as to apply coating mix ejected therefrom to a surface of the web in a continuous curtain extending uniformly over a cross-machine width of the web. Figures 1-2 and paragraphs [0016] and [0017]. A doctoring means is provided to remove a boundary air layer traveling on the surface of the web to be coated. Abstract, paragraph [0019] and figures 1 and 6 (the roll of figure 6 would

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correspond to the "bar" of applicant as shown in figure 5 of the present application). The doctoring means is located upstream in the travel direction of the web of an impingement point of the coating mix curtain on the surface of the web (i.e. located before the coating point). Figures 1, 2, 6 and the abstract. The doctoring means is also located on the same side of the web as the applicator nozzle. Figures 1, 2, 6 and the abstract. The surface of the doctoring means facing the web is curved. Figures 1, 2, 6 and paragraph [0019]. This curve can support the web. Abstract and figures 1, 2 and 6 (from a reading of the claims and disclosure as originally filed, the Examiner understands "support the web" as curving the web around the curved surface of the doctor as shown in figures 2-5 of the present application. While '061 does not show the curving of the surface, '061 teaches a paper web in contact with a roll surface, and thus teaches an apparatus "capable" of "supporting" the web as claimed.

Claim 21: the distance between the web and the curved surface of the doctoring means can be zero, since the curved surface contacts the web, and is therefore less than 500 microns as required. Abstract.

Claim 29: the doctoring means can be a doctor bar (i.e. a roll). See figure 6 and paragraph [0019].

Claim 33: the doctoring means can be a doctor bar (i.e. a roll). See figure 6 and paragraph [0019].

Claims 37, 45, 46: the distance along the surface of the web from a downstream end of the doctoring means to the impingement point under the applicator nozzle can be less than 50 mm. See the abstract (3 mm, for example).

7. Claims 13, 21, 37, 45 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibata et al (US 5044305).

Claims 13 and 47: Shibata teaches a curtain coater and method for coating a moving web of paper. Figure 1 and column 1, lines 5-30. An applicator nozzle is positioned above the web to be coated. Figure 1 and column 2, lines 55-65. The applicator nozzle is configured so as to apply coating mix ejected therefrom to a surface of the web in a continuous curtain extending uniformly over a cross-machine width of the web. Figure 1 and column 2, lines 55-65 and column 3, lines 15-45. A doctoring means is provided to remove a boundary air layer traveling on the surface of the web to be coated. Figures 1-2 and column 3, lines 20-60 (the blade 20 with curve surface 21 corresponds to the surface shown in figure 2 of the present application). The doctoring means is located upstream in the travel direction of the web of an impingement point of the coating mix curtain on the surface of the web (i.e. located before the coating point). Figures 1-2 and column 3, lines 20-60. The doctoring means is also located on the same side of the web as the applicator nozzle. Figures 1-2. The surface of the doctoring means facing the web is curved. Figure 2 and column 3, lines 50-60. This curve can support the web. Figure 2 and column 3, lines 50-60 (from a reading of the claims and disclosure as originally filed, the Examiner understands "support the web" as curving the web around the curved surface of the doctor as shown in figures 2-5 of the present application).

Claim 21: the distance between the web and the curved surface of the doctoring means can be 2 microns or less. See figure 2 and column 4, lines 35-45, noting a precoating thickness of 2 microns, since the curved surface contacts the precoating layer.

Claims 37 and 45: the distance along the surface of the web for a downstream end of the doctoring means to the impingement point under the applicator nozzle can be less than 50 mm, since the doctor means contacts the impingement point. See figure 2 and column 3, lines 10-20.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 15, 19, 23, 27, 31, 35, 39, 43, 47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over '061 as applied to claims 13, 21, 29, 33, 37 and 45-46 above, and further in view of GB 1,080,523 (hereinafter '523).

'061 teaches all the features of these claims except (1) the suction nozzle and its features(claims 15, 19, 49), and (2) the support of the doctor means.

However, '523 also teaches a curtain coater and a method of curtain coating a moving web. Figures 1-2 and page 1, lines 10-20. The web to be coated is passed to a coater station.

Figure 2. An applicator nozzle is positioned above the web to be coated. Figures 1-2 and page 3,

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lines 1-20. The applicator nozzle is used to apply coating mix ejected therefrom to a surface of the web in a continuous curtain extending over a cross-machine width of the web. Figure 2 and page 3, lines 1-20. A doctoring means is used to remove a boundary air layer traveling on the surface of the web to be coated. Figures 1-3 and page 2, lines 25 through 75 and page 3, lines 70-105 (device 16 with knife edge 18). The doctoring means is located upstream in the travel direction of the web of an impingement point of the coating mix curtain on the surface of the web (i.e. located before the coating point). Figures 1-2. The doctoring means is also located on the same side of the web as the applicator nozzle to remove air from the surface facing the applicator nozzle. Figures 1-2. The doctoring means is pushed against the web so that the means "supports" the web as the web curves around the doctoring means. See figures 1-3 and page 2, lines 25-65. The doctoring means is also provided with a suction means with an inlet facing the web so as to suction the boundary air layer traveling on the surface of the web. Figure 3 and page 2, lines 60 through 75 and page 4, line 125 through page 5, line 15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '061 to provide pressure of the roll means against the web so as to "support" the web against the curve of the roll as suggested by '523 with an expectation of desirable coating results, because '061 teaches a curtain coating process where a roll is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and '523 teaches that when providing a curtain coating process where a doctor device is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web, it is desirable to provide enough force to curve the web around the doctor device, with

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the result that a curve around the doctor roll of '061 would provide a curve of the web around the curve of the roll as required by the claims. It would further have been obvious to either provide the roll of '061 with a suction means with an inlet facing the web or to provide the roll of '061 and additionally provide a suction means as taught by '523 with an expectation of desirably improved air removal results, because '061 teaches a curtain coating process where a roll is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and '523 teaches that when providing a curtain coating process where a doctor device is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web, it is desirable to provide the coating means with a suction means so as to further remove boundary air layer.

10. Claims 14, 22, 30, 34 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over '061 as applied to claims 13, 21, 29, 33, 37 and 45-46 above, and further in view of Kessel et al (US 5733608).

'061 teaches all the features of these claims except the gas nozzle and its features (claims 14 and 48).

However, Kessel also teaches a curtain coater and a method of curtain coating a moving web. Figure 1 and column 3, lines 20-40. The web to be coated is passed to a coater station. Figure 1 and column 4, lines 20-40. An applicator is positioned above the web to be coated. Figure 1 and column 4, lines 15-65. The applicator nozzle is used to apply coating mix ejected therefrom to a surface of the web in a continuous curtain extending over a cross-machine width of

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the web. Figure 1 and column 4, lines 45-65. A gas nozzle is provided downstream of the coating point that blows air on the coated web. Figure 1 and column 6, lines 1-10 and 40-45. This nozzle extends across the width of the web, since it blows carrier fluid applied across the width of the web off of the coating. Figure 1 and column 6, lines 1-10 and 40-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '061 to use a gas nozzle to blow gas against the coating as suggested by Kessel with an expectation of desirable coating results, because '061 teaches a curtain coating process where a roll is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and Kessel teaches that when providing a curtain coating process, it is desirable to provide a gas nozzle to blow gas to remove undesirable fluid from the applied coating.

11. Claims 17-18, 25-26 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over '061 in view of Kessel as applied to claims 14, 22, 30, 34 and 38 above, and further in view of GB 1,080,523 (hereinafter '523).

'061 in view of Kessel teaches all the features of these claims except (1) the suction nozzle and its features (claims 16, 20, 50), and (2) the support of the doctor means.

However, '523 also teaches a curtain coater and a method of curtain coating a moving web. Figures 1-2 and page 1, lines 10-20. The web to be coated is passed to a coater station. Figure 2. An applicator nozzle is positioned above the web to be coated. Figures 1-2 and page 3, lines 1-20. The applicator nozzle is used to apply coating mix ejected therefrom to a surface of

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the web in a continuous curtain extending over a cross-machine width of the web. Figure 2 and page 3, lines 1-20. A doctoring means is used to remove a boundary air layer traveling on the surface of the web to be coated. Figures 1-3 and page 2, lines 25 through 75 and page 3, lines 70-105 (device 16 with knife edge 18). The doctoring means is located upstream in the travel direction of the web of an impingement point of the coating mix curtain on the surface of the web (i.e. located before the coating point). Figures 1-2. The doctoring means is also located on the same side of the web as the applicator nozzle to remove air from the surface facing the applicator nozzle. Figures 1-2. The doctoring means is pushed against the web so that the means "supports" the web as the web curves around the doctoring means. See figures 1-3 and page 2, lines 25-65. The doctoring means is also provided with a suction means with an inlet facing the web so as to suction the boundary air layer traveling on the surface of the web. Figure 3 and page 2, lines 60 through 75 and page 4, line 125 through page 5, line 15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '061 in view of Kessel to provide pressure of the roll means against the web so as to "support" the web against the curve of the roll as suggested by '523 with an expectation of desirable coating results, because '061 in view of Kessel teaches a curtain coating process where a roll is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and '523 teaches that when providing a curtain coating process where a doctor device is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web, it is desirable to provide enough force to curve the web around the doctor device, with the result that a curve around the doctor roll of '061

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would provide a curve of the web around the curve of the roll as claimed. It would further have been obvious to either provide the roll of '061 in view of Kessel with a suction means with an inlet facing the web or to provide the roll of '061 in view of Kessel and additionally provide a suction means as taught by '523 with an expectation of desirably improved air removal results, because '061 in view of Kessel teaches a curtain coating process where a roll is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and '523 teaches that when providing a curtain coating process where a doctor device is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web, it is desirable to provide the coating means with a suction means so as to further remove boundary air layer.

12. Claims 17, 18, 25, 26, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over '061 in view of '523 as applied to claims 15, 19, 23, 27, 31, 35, 39, 43, 47 and 49 above, and further in view of Kustermann (hereinafter 6146690).

'061 in view of '523 teaches all the features of these claims except the suction nozzle on a downstream directed wall.

However, Kustermann also teaches a curtain coater and a method of curtain coating a moving web. Figure 1 and column 2, lines 10-20. The web to be coated is passed to a coater station. Figure 1. An applicator nozzle is positioned above the web to be coated. Figure 1 and column 3, lines 50-60. The applicator nozzle is used to apply coating mix ejected therefrom to a surface of the web in a continuous curtain extending over a cross-machine width of the web.

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Figure 1 and column 3, line 50 through column 4, line 15. A suctioning means is used to remove a boundary air layer traveling on the surface of the web to be coated. Figures 1 and column 4, lines 20-30. The suction means is located upstream in the travel direction of the web of an impingement point of the coating mix curtain on the surface of the web (i.e. located before the coating point). Figures 1. The suctioning means is also located on the same side of the web as the applicator nozzle to remove air from the surface facing the applicator nozzle. Figure 1. The suctioning means is also provided with an inlet facing downstream direction. Figure 1

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify '061 in view of '523 to provide suction inlet means facing a downstream direction as suggested by Kustermann with an expectation of desirable coating results, because '061 in view of '523 teaches a curtain coating process where a suction means is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and Kustermann teaches that when providing a curtain coating process where suction device is ^{provided} ~~provided~~ before the coating point so as to remove an air boundary layer on the surface of the web, it is desirable to provide the curtain coating positioning so that the suction inlet faces downstream of the coating point.

13. Claims 14, 22, 38 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata as applied to claims 13, 21, 37, 45 and 47 above, and further in view of Kessel et al (US 5733608).

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Shibata teaches all the features of these claims except the gas nozzle and its features (claims 14 and 48).

However, Kessel also teaches a curtain coater and a method of curtain coating a moving web. Figure 1 and column 3, lines 20-40. The web to be coated is passed to a coater station. Figure 1 and column 4, lines 20-40. An applicator is positioned above the web to be coated. Figure 1 and column 4, lines 15-65. The applicator nozzle is used to apply coating mix ejected therefrom to a surface of the web in a continuous curtain extending over a cross-machine width of the web. Figure 1 and column 4, lines 45-65. A gas nozzle is provided downstream of the coating point that blows air on the coated web. Figure 1 and column 6, lines 1-10 and 40-45. This nozzle extends across the width of the web, since it blows carrier fluid applied across the width of the web off of the coating. Figure 1 and column 6, lines 1-10 and 40-45.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Shibata to use a gas nozzle to blow gas against the coating as suggested by Kessel with an expectation of desirable coating results, because Shibata teaches a curtain coating process where a roll is provided in contact with the web before the coating point so as to remove an air boundary layer on the surface of the web and Kessel teaches that when providing a curtain coating process, it is desirable to provide a gas nozzle to blow gas to remove undesirable fluid from the applied coating.

14. Japan 10-165868 also teaches using a roll on a web prior to the impingement point of a curtain of coating in order to remove an air boundary layer. See figures 2 and 10.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP 1100/700